

REMARKS

Applicants will address each of the Examiner's rejections in the order in which they appear in the Office Action.

Claim Rejections - 35 USC §103

Claims 20-22, 44, 45, 48 and 63

In the Office Action, the Examiner rejects Claims 20-22, 44, 45, 48 and 63 under 35 USC §103(a) as being unpatentable over Arai et al. (US 5,817,366) in view of Grothe et al.¹ and Monk (US 4,187,801). This rejection is respectfully traversed.

In the Office Action, the Examiner admits that Arai does not disclose some of the claimed limitations of the rejected claims. The Examiner, however, contends that it would have been obvious to one of ordinary skill in the art to modify the process of Arai so as to utilize, as the evaporation source the evaporation source of Grothe and to further modify the process of Arai so as to move the substrate and the evaporating sources relative to each other, as allegedly taught by Monk.

While Applicants respectfully disagree, in order to advance the prosecution of this application, Applicants have amended independent Claim 20 to include the step of fixing a mask to the substrate wherein the mask is located between the substrate and the first evaporation source. This is disclosed, for example, in Fig. 1 of the present application (see also e.g. page 4 of the specification).

In contrast, while the Examiner contends that Arai discloses that the substrate is transferred between chambers and layers of different EL materials are successively applied to

¹ Applicants assume that this is US Patent No. 3,931,490, as opposed to US 3,391,490 cited in the Office Action.

produce the display device, Arai does not disclose or suggest the step of fixing a mask to the substrate wherein the mask is located between the substrate and the first evaporation source, as in independent Claim 20 of the present application.

Further, while the Examiner contends that Grothe discloses that when coating a substrate by vapor deposition, an evaporation source elongated in one dimension results in enhanced vapor density and that the vapor deposit is essentially uniform over the entire width of the surface, Grothe does not disclose or suggest the step of fixing a mask to the substrate wherein the mask is located between the substrate and the first evaporation source, as in independent Claim 20 of the present application.

Similarly, Monk does not disclose or suggest this step either.

Accordingly, for at least the above-stated reasons, independent Claim 20 and those claims dependent thereon are not disclosed or suggested by the cited references but are patentable thereover. Therefore, it is respectfully requested that this rejection be withdrawn.

Claims 37, 43, 48, 53 and 64

The Examiner also rejects Claims 37, 43, 48, 53 and 64 under 35 USC §103 as being unpatentable over Arai et al. in view of Bennett (US 2,435,997) and Grothe et al. This rejection is also respectfully traversed.

In the Office Action, the Examiner combines Arai and Grothe in the same manner discussed above, and further contends that it would have been obvious to one of ordinary skill in the art to modify the method of Arai so as to move the evaporation source relative to the substrate, as allegedly taught by Bennett.

While Applicants respectfully disagree, in order to advance the prosecution of this

application, independent Claim 37 has been amended in a similar manner to that discussed above for Claim 20. As explained above, neither Arai nor Grothe disclose or suggest this step. Bennett also does not disclose or suggest this step.

Further, independent Claim 37 recites providing a second evaporation source in a second chamber connected to the evaporation chamber, and transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material. It is respectfully submitted that none of the cited references disclose or suggest transferring the second evaporation source from the second chamber into the evaporation chamber.

Accordingly, for at least the above-stated reasons, the claims are patentable over these cited references, and it is respectfully requested that this rejection be withdrawn.

Claims 38, 48, 56 and 65

The Examiner also rejects Claims 38, 48, 56 and 65 under 35 USC §103 as being unpatentable over Arai et al. in view of Bennett, Grothe et al. and Monk. This rejection is also respectfully traversed.

In the Office Action, the Examiner combines Arai and Grothe in the same manner discussed above, and contends that it would have been obvious to further modify the method of Arai with the alleged teachings of Bennett and Monk.

While Applicants respectfully disagree, in order to advance the prosecution of this application, independent Claim 38 has been amended in a similar manner to that discussed above for Claim 20. As explained above, neither Arai, Grothe, Bennett, nor Monk disclose or suggest this step.

Further, independent Claim 38 recites providing a second evaporation source in a second

chamber connected to the evaporation chamber, and transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material. It is respectfully submitted that none of the cited references disclose or suggest transferring the second evaporation source from the second chamber into the evaporation chamber.

Accordingly, for at least the above-stated reasons, the claims are patentable over these cited references, and it is respectfully requested that this rejection be withdrawn.

Claims 39, 48, 53, 57 and 66

The Examiner also rejects Claims 39, 48, 53, 57 and 66 under 35 USC §103 as being unpatentable over Arai et al. in view of Feuerstein et al (US 4,627,989), Bennett, and Yamamoto et al. (US 6,179,923) This rejection is also respectfully traversed.

In the Office Action, the Examiner asserts Arai in the same manner discussed above, and further contends that it would have been obvious to one of ordinary skill in the art to modify the method of Arai with the alleged teachings of Feuerstein, Bennett and Yamamoto

While Applicants respectfully disagree, in order to advance the prosecution of this application, independent Claim 39 has been amended in a similar manner to that discussed above for Claim 20. As explained above, neither Arai nor Bennett disclose or suggest this step. Feuerstein and Yamamoto also do not disclose or suggest this step.

Further, independent Claim 39 recites providing a second evaporation source in a second chamber connected to the evaporation chamber, and transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material. It is respectfully submitted that none of the cited references disclose or suggest transferring the second evaporation source from the second chamber into the evaporation chamber.

Accordingly, for at least the above-stated reasons, the claims are patentable over these cited references, and it is respectfully requested that this rejection be withdrawn.

Claims 40, 48, 58 and 67

The Examiner also rejects Claims 40, 48, 58 and 67 under 35 USC §103 as being unpatentable over Arai et al. in view of Feuerstein et al., Bennett, and Yamamoto et al. or in the alternative over Arai et al. in view of Feuerstein et al., Bennett, Monk, and Yamamoto et al. This rejection is also respectfully traversed.

In the Office Action, the Examiner combines the references in the same manner discussed above, contends that it would have been obvious to combine these references to arrive at the claimed invention, and contends that undisclosed features would be inherent in the references.

While Applicants respectfully disagree, in order to advance the prosecution of this application, independent Claim 40 has been amended in a similar manner to that discussed above for Claim 20. As explained above, neither Arai, Feuerstein, Bennett, Yamamoto, nor Monk disclose or suggest this step.

Further, independent Claim 40 recites providing a second evaporation source in a second chamber connected to the evaporation chamber, and transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material. It is respectfully submitted that none of the cited references disclose or suggest transferring the second evaporation source from the second chamber into the evaporation chamber.

Accordingly, for at least the above-stated reasons, the claims are patentable over these cited references, and it is respectfully requested that this rejection be withdrawn.

Claim 49

The Examiner also rejects Claim 49 under 35 USC §103 as being unpatentable over Arai et al. in view of Grothe et al and Monk and further in view of Spitzer et al. (US 5,258,325). This rejection is also respectfully traversed.

This claim is a dependent claim. Therefore, for at least the reasons discussed above for the independent claim, this claim would also be patentable. Accordingly, it is requested that this rejection be withdrawn.

Claim 54 and 68

The Examiner also rejects Claim 54 under 35 USC §103 as being unpatentable over Arai et al. in view of Bennett, Grothe et al. and Yamamoto et al. This rejection is also respectfully traversed.

In the Office Action, the Examiner combines the references in the same manner discussed above, contends that it would have been obvious to combine the references to arrive at the claimed invention, and contends that the undisclosed features would be inherent in the references or obvious.

While Applicants respectfully disagree, in order to advance the prosecution of this application, independent Claim 54 has been amended in a similar manner to that discussed above for Claim 20. As explained above, neither Arai, Grothe, Bennett, nor Yamamoto disclose or suggest this step.

Further, independent Claim 54 recites providing a second evaporation source in a second chamber connected to the evaporation chamber, and transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material. It is

respectfully submitted that none of the cited references disclose or suggest transferring the second evaporation source from the second chamber into the evaporation chamber.

Accordingly, for at least the above-stated reasons, the claims are patentable over these cited references, and it is respectfully requested that this rejection be withdrawn.

Claim 55

The Examiner also rejects Claim 55 under 35 USC §103 as being unpatentable over Arai et al. in view of Bennett, Grothe et al., Monk, and Yamamoto et al. This rejection is also respectfully traversed.

In the Office Action, the Examiner combines the references in the same manner discussed above, contends that it would have been obvious to combine these references to arrive at the claimed invention, and contends that undisclosed features would be inherent in the references.

While Applicants respectfully disagree, in order to advance the prosecution of this application, independent Claim 55 has been amended in a similar manner to that discussed above for Claim 20. As explained above, neither Arai, Grothe, Bennett, Yamamoto, nor Monk disclose or suggest this step.

Further, independent Claim 55 recites providing a second evaporation source in a second chamber connected to the evaporation chamber, and transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material. It is respectfully submitted that none of the cited references disclose or suggest transferring the second evaporation source from the second chamber into the evaporation chamber.

Accordingly, for at least the above-stated reasons, Claim 55 is patentable over these cited references, and it is respectfully requested that this rejection be withdrawn.

Claim 59

The Examiner also rejects Claim 59 under 35 USC §103 as being unpatentable over Arai et al., in view of Bennett and Grothe et al; further in view of Spitzer et al. This rejection is also respectfully traversed.

This claim is a dependent claim. Therefore, for at least the reasons discussed above for the independent claim, this claim would also be patentable. Accordingly, it is requested that this rejection be withdrawn.

Claim 60

The Examiner also rejects Claim 60 under 35 USC §103 as being unpatentable over Arai et al., in view of Bennett, Grothe et al. and Monk, further in view of Spitzer et al. This rejection is also respectfully traversed.

This claim is a dependent claim. Therefore, for at least the reasons discussed above for the independent claim, this claim would also be patentable. Accordingly, it is requested that this rejection be withdrawn.

Claim 61

The Examiner also rejects Claim 61 under 35 USC §103 as being unpatentable over Arai et al., in view of Feuerstein et al., Bennett, and Yamamoto et al., further in view of Spitzer et al. This rejection is also respectfully traversed.

This claim is a dependent claim. Therefore, for at least the reasons discussed above for the independent claim, this claim would also be patentable. Accordingly, it is requested that this rejection be withdrawn.

Claim 62

The Examiner also rejects Claim 62 under 35 USC §103 as being unpatentable over Arai et al., in view of Feurestein et al., Bennett and Yamamoto et al., or in the alternative over Arai et al., in view of Feuerstein et al., Bennett, Monk and Yamamoto et al., further in view of Spitzer et al. This rejection is respectfully traversed.

This claim is a dependent claim. Therefore, for at least the reasons discussed above for the independent claim, this claim would also be patentable. Accordingly, it is requested that this rejection be withdrawn.

Therefore, it is respectfully submitted that the §103 rejections have been overcome, and it is requested that the rejections be withdrawn, and the claims allowed.

Withdrawal of Prior Argument

In Amendment D filed on September 3, 2004, Applicants argued that Grothe and Feuerstein use an electron beam evaporator, that one of ordinary skill in the art would not use an electron beam evaporator for an organic EL material, and that one of ordinary skill in the art would not use the electron beam evaporator of Grothe or Feuerstein for the EL cell of Arai. The Examiner disagreed, contending that this position is unsupported by the record and that the teaching in Grothe (and Feuerstein) is generic to vapor deposition sources. Upon further review, Applicants are withdrawing these prior arguments and believe that the claims of the present application can be construed to cover electron beam evaporation. Therefore, no estoppel should result from Applicants' prior arguments regarding Grothe or Feurstein.

New Claims

Applicants are also adding new Claims 69-102.

Claim 69 recites the feature that wherein uniformity of the distribution of film thickness of a thin film in a rectangular shape, elliptical shape, or a linear shape region is maintained by using the first evaporation source during the evaporation. This feature is supported, for example, by the specification at page 3, lines 19 - page 4, line 1, page 6, lines 17-23, and page 8, lines 22-24.

Claim 70 recites the feature that first and second evaporation chambers are connected with each other through at least one gate. This feature is supported, for example, by the specification at page 13, line 5 – page 14, line 14 and Fig. 5.

Claim 73 recites the feature that the mask fixed to a mask holder approaches the substrate by a magnet field. This feature is supported, for example, by the specification at page 9, lines 1-5.

Claims 74-80 recite the feature that the first and second evaporation source has a length exceeding 300 mm along the first direction. This feature is supported, for example, by the specification at page 4, lines 1-5 and page 9, lines 8-9.

Claims 81 and 85 recite the feature that a second material is evaporated from second evaporation source to deposit a light emitting layer over the hole injecting layer. This feature is supported by the specification in page 18, line 15 – page 19 line 15.

Claims 69-97 are patentable over the cited references for at least the reasons discussed above for independent Claim 20.

With regard to Claims 98-101, the inventors of the present application first used an evaporation source having an elongated shape to form a light emitting layer comprising an

organic material for a method of manufacturing an electroluminescence display device. In addition, the inventors also discovered that the method of manufacturing an electroluminescence display device is particularly effective when the substrate is a large size substrate exceeding 300 mm. Accordingly, new Claims 98-101 are directed to these features.

Therefore, it is requested that these new claims be entered, examined and allowed at this time.

If any fee is due for these new claims, please charge our deposit account 50/1039.

Information Disclosure Statement

Applicants are also filing an Information Disclosure Statement (IDS) herewith. It is respectfully requested that this IDS be entered and considered prior to the issuance of any further action on this application.

If any further fee is due for this IDS, please charge our deposit account 50/1039.

Conclusion


Accordingly, for at least the above-stated reasons, Applicants respectfully submit that the present application is in a condition for allowance and should be allowed.

If any further fee is due for this amendment, please charge our deposit account 50/1039.

Favorable reconsideration is earnestly solicited.

Respectfully submitted,

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